

An ability to identify, formulate & solve complex engineering problems **MET**

An ability to identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics.

1.1 Identify the type of complex engineering problem

1.2 Develop and formulate a solution methodology to solve a complex engineering problem by applying scientific, engineering, and mathematical principles

1.3 Solve complex engineering problems

MEASURES	RESULTS	ACTIONS
Assessment of Outcome 1 via CVEN 3370 In Spring 2026, this course will be used to evaluate Outcome 1: An ability to identify, formulate & solve complex engineering problems. At the end of Spring 2026, the assessment results will be uploaded. Direct - Assignment <i>Water & Wastewater Treatment: CVEN 3370</i> Target The student outcome shall be attained if greater than or equal to 70% of the students in this class receives an average score of 3 out of 4. Water and Wastewater Treatment-Design project- Group-1.pdf Water and Wastewater Treatment-Design project- Group-2.pdf Water and Wastewater Treatment-Design project- Group-3.pdf Water and Wastewater Treatment-Design project- Group-4.pdf	MET Summary The students were requested to design a water treatment plant for a US city (minimum population of 100,000). This assignment was designed to assess the students' ability to identify, formulate, and solve a complex engineering problem (designing a water treatment plant for a US city) The students were expected to meet specific design specifications and constraints for the design. At the end of the project, the students were expected to submit a comprehensive water treatment plant design report consisting of the following sections: 1) executive summary, 2) city history, 3) population projection for a 50-year design life, 4) selection of water source, 5) water demand calculations, 6) water treatment plant design, 7) sludge management, 8) summary of water treatment train with dimensions/layouts, 9) plant drawings and, 10) work distribution, 11) references and appendix. This task was aimed at evaluating the students' ability to apply engineering design to produce solutions to meet specific needs. In summary, the assessment results show that 7 students' assessment scores are below 3.0. In other words, 74% of students (i.e., 20 out of 27 students) have a score of 3.0 or higher. For the average score, the 70-percentile is 3.76. Please see the details in the following section of Analysis of the Findings Conclusion: Given 70% as the pre-defined assessment threshold, the committee stated the assessment was rigorous and concluded that Outcome 1 was met. CVEN3370_Spring 2026_Outcome 1.docx Analysis Table 1 gives the assessment results for Outcome 1. The assessment scores less than 3.0 were highlighted. The results show that 7 students' assessment scores are below 3.0. In other words, 74% of students (i.e., 20 out of 27 students) have a	<i>No actions have been added.</i>

score of 3.0 or higher. For the average score, the 70-percentile is 3.76.

Table 1 Assessment of CVEN 3370 for Outcome 1

Student No	Outcome			Average
	1.1	1.2	1.3	
1	3.56	3.20	3.18	3.31
2	3.88	3.88	3.65	3.80
3	3.88	3.88	3.65	3.80
4	2.60	2.60	2.44	2.55
5	3.88	3.88	3.65	3.80
6	3.56	3.56	3.35	3.49
7	3.88	3.88	3.65	3.80
8	2.60	2.29	2.30	2.40
9	3.48	3.02	3.05	3.18
10	2.60	2.39	2.35	2.45
11	2.60	2.60	2.44	2.55
12	3.84	3.84	3.61	3.76
13	2.60	2.50	2.40	2.50
14	2.60	2.21	2.26	2.36
15	3.48	3.13	3.11	3.24
16	3.48	3.02	3.05	3.18
17	3.56	3.56	3.35	3.49
18	3.48	3.48	3.27	3.41
19	3.84	3.84	3.61	3.76
20	3.48	3.48	3.27	3.41
21	3.84	3.84	3.61	3.76
22	2.60	1.99	2.16	2.25
23	3.88	3.88	3.65	3.80
24	3.84	3.84	3.61	3.76
25	3.56	3.56	3.35	3.49
26	3.84	3.84	3.61	3.76
27	3.56	3.56	3.35	3.49
Average	3.41	3.29	3.15	3.28
% > 3.0	74.1%	74.1%	74.1%	74.1%

Table 2 gives the final grade distribution. 81.5% of students got a grade of C or higher. This percentage is close to the percentage of assessment higher than 3.0 (74.1%).

Table 2 Grade Distribution of CVEN 3370

Grade	Number of Students	Percent
A	6	22.2%
B	11	40.7%
C	5	18.5%
D	3	11.1%
F	2	7.4%

Conclusion: Given 70% as the pre-defined assessment threshold, the committee stated the assessment was rigorous and concluded that Outcome 1 was met.

Action Plan: No further action is planned because the expected outcome was met.

Conclusion

The assessment results show that 7 students' assessment scores are below 3.0. In other words, 74% of students (i.e., 20 out of 27 students) have a score of 3.0 or higher. For the average score, the 70-percentile is 3.76. Also, 81.5% of students got a grade of C or higher. This percentage is close to the percentage of assessment higher than 3.0 (74.1%). Given 70% as the pre-defined assessment threshold, the committee stated the assessment was rigorous and concluded that Outcome 1 was met.

An ability to apply engineering design **MET**

An ability to apply engineering design to produce solutions that meet specified needs with consideration of public health, safety, and welfare, as well as global, cultural, social, environmental, and economic factors.

- 2.1 Engineering design solution meets specified technical standard/code/manual requirements.
- 2.2 Engineering design solution considers and satisfies specified public health, safety, or welfare needs and constraints.
- 2.3 Engineering design solution considers and satisfies specified global, cultural, social, environmental, or economic needs .

MEASURES	RESULTS	ACTIONS
Assessment of Objective 2.1 via CVEN 4380 Objective 2.1: <i>Engineering design solutions meet specified technical standard/code/manual requirements will be assessed via CVEN 4380 Reinforced Concrete Design.</i> Direct - Assignment <i>Reinforced Concrete Design: CVEN 4380</i> Target The student outcome shall be attained if greater than or equal to 70% of the students in this class receives an average score of 3 out of 4. Exam 2 Combined_Redacted.pdf Final Exam_Redacted.pdf	MET Summary The performance metric was derived from Question #1 on all three exams: two midterm exams and the final exam. Each student's raw score (in percentage) on this targeted question was converted into one of four discrete assessment scores (1-4), using the following mapping rubric: a score of 4 was assigned for the percentage 80% or higher; a score of 3 was assigned for the percentage of 70% or higher (less than 80%); a score of 2 was assigned for the percentage of 60% or higher (less than 70%); and a score of 1 was assigned for any percentage below 60%. Every student in this course was assessed, except one student who did not show up in all three exams. The final aggregated score is the average of the assessed problem in three exams. Each assessed problem is weighed equally. The student outcome shall be attained if greater than or equal to 70% of the students in this class receives an average score of 3 out of 4. The samples of these exams were also attached. The assessment results show that 71.4% of students have a score of 3.0 or higher, and the average assessment score is 3.3. Conclusion: Based on the materials and grade distribution. The committee stated the assessment was rigorous and concluded that Outcome 2.1 was met. The committee also suggested that by moving the design courses to the senior year so that students can be more prepared. Action Plan: Based on the assessment, the instructor plans to take the following actions in the future to improve the teaching.	Revise Measurement / Assessment IN PROGRESS Refine the assessment data by moving from "Exam Grade" to "Topic-Specific" tracking. Recommended Due Date: 12/15/2026 Adopt or Expand Technologies IN PROGRESS 1. Instead of deriving the interaction diagram from scratch in the final week, a "skeleton" handout will be provided where students fill in the strain diagram values. This reduces the cognitive load of drawing and focuses their attention on the reinforcement ratio. 2. Development length is rules-based. A flowchart will be provided that guides students: "Is the bar coated? Yes/No → Is it top reinforcement? Yes/No." This visual aid will help prevent the simple lookup errors that are driving the scores down. Recommended Due Date: 12/15/2026

- Instead of deriving the interaction diagram from scratch in the final week, a "skeleton" handout will be provided where students fill in the strain diagram values. This reduces the cognitive load of drawing and focuses their attention on the reinforcement ratio.
- Development length is rules-based. A flowchart will be provided that guides students: "Is the bar coated? Yes/No → Is it top reinforcement? Yes/No." This visual aid will help prevent the simple lookup errors that are driving the scores down.
- Refine the assessment data by moving from "Exam Grade" to "Topic-Specific" tracking.

[ABET Assessing_F2025.docx](#)

Analysis

The performance metric was derived from Question #1 on all three exams: two midterm exams and the final exam. Each student's raw score (in percentage) on this targeted question was converted into one of four discrete assessment scores (1-4), using the following mapping rubric: a score of 4 was assigned for the percentage 80% or higher; a score of 3 was assigned for the percentage of 70% or higher (less than 80%); a score of 2 was assigned for the percentage of 60% or higher (less than 70%); and a score of 1 was assigned for any percentage below 60%.

Every student in this course was assessed, **except one student who did not show up in all three exams**. The final aggregated score is the average of the assessed problem in three exams. Each assessed problem is weighed equally.

The student outcome shall be attained if greater than or equal to 70% of the students in this class receives an average score of 3 out of 4.

The samples of these exams were also attached. Based on the above description of the score mapping, Table 1 gives detailed assessment scores from three exams for each student.

Table 1. Assessment Scores for Each Student based on Three Exams

Objective 2.1				
Student	Exam 1	Exam 2	Final Exam	Average
1	4	4	4	4.0
2	4	1	4	3.0
3	4	2	3	3.0
4	4	4	4	4.0
5	4	4	4	4.0
6	4	2	2	2.7
7	4	3	3	3.3
8	4	2	1	2.3
9	4	4	4	4.0
10	4	4	4	4.0

	<table><tr><td>11</td><td>4</td><td>2</td><td>2</td><td>2.7</td></tr><tr><td>12</td><td>4</td><td>4</td><td>3</td><td>3.7</td></tr><tr><td>13</td><td>4</td><td>1</td><td>2</td><td>2.3</td></tr><tr><td>14</td><td>4</td><td>4</td><td>4</td><td>4.0</td></tr><tr><td>15*</td><td>0</td><td>0</td><td>0</td><td>0</td></tr><tr><td>Average</td><td></td><td></td><td></td><td>3.3</td></tr><tr><td>% </td><td></td><td></td><td></td><td>71.4%</td></tr></table> Note: * this student did not show up in all exams. He was excluded from assessment. Table 1 shows that 71.4% of students have a score of 3.0 or higher, and the average assessment score is 3.3. Conclusion: Based on the materials and grade distribution. The committee stated the assessment was rigorous and concluded that Outcome 2.1 was met. The committee also suggested that by moving the design courses to the senior year so that students can be more prepared.	11	4	2	2	2.7	12	4	4	3	3.7	13	4	1	2	2.3	14	4	4	4	4.0	15*	0	0	0	0	Average				3.3	%				71.4%	
11	4	2	2	2.7																																	
12	4	4	3	3.7																																	
13	4	1	2	2.3																																	
14	4	4	4	4.0																																	
15*	0	0	0	0																																	
Average				3.3																																	
%				71.4%																																	
Assessment of Outcome 2 via CVEN 4313 Outcome 2 will be assessed in Spring 2026. The assessment will be done in the end of Spring 2026, and the results will be uploaded. Direct - Assignment Civil Eng Sys Des Proj (II): CVEN 4313 Target The student outcome shall be attained if greater than or equal to 70% of the students in this class receives an average score of 3 out of 4. Group 1.pdf Group2_presentation.pdf Group3_presentation.pdf	MET Summary To assess Outcome 2, assembly of a Basis of Design Document was used to identify, determine, and document the projects’ technical, environmental, usage, and public health and safety requirements. Client project needs and usage requirements were assessed and compared against industry standards for that type of project. This was then leveraged against public safety interest, and environmental factors and requirements. This document was then presented to the client for comment, to make sure all stakeholders and engineers were in agreement with the design philosophy early in the project. The listed items included but were not limited to project usage, design codes and standards, environmental loading and constraints, potential future usages, historic weather data, potential permitting requirements, and local ordinances. The assessment of Outcome 2 is based on the grade of each student’s basis of design. The assessment results show that all students have score higher than 3.0. For the average score, the 70-percentile is 3.53. Conclusion: Given 70% as the pre-defined assessment threshold, the committee stated the assessment was rigorous and concluded that Outcome 2 was met from this course. CVEN4313 - Outcome 2_new.docx Analysis The senior students of this class were requested to follow the process that a consulting engineer would follow to	No actions have been added.																																			

produce construction drawings for a design project of their choosing. Four deliverable submittals were set: following the industry standard design phases of 30%, 60%, 90%, and 100%, respectively. The required submittals include (1) Basis of Design, (2) Design Schedule, (3) Construction Drawings, and (4) Supporting Design Calculations.

To assess Outcome 2, assembly of a Basis of Design Document was used to identify, determine, and document the projects' technical, environmental, usage, and public health and safety requirements. Client project needs and usage requirements were assessed and compared against industry standards for that type of project. This was then leveraged against public safety interest, and environmental factors and requirements. This document was then presented to the client for comment, to make sure all stakeholders and engineers were in agreement with the design philosophy early in the project. The listed items included but were not limited to project usage, design codes and standards, environmental loading and constraints, potential future usages, historic weather data, potential permitting requirements, and local ordinances. The assessment of Outcome 2 is based on the grade of each student's basis of design.

Table 1 reports the assessment results of CVEN 4311 for Outcome 2, and Table 2 gives the distribution of final grade of this course. For the average score, the 70-percentile is 3.53.

Table 1 Assessment of CVEN 4311 for Outcome 2

Student No	Outcome			Average
	2.1	2.2	2.3	
1	3.37	3.18	4.17	3.57
2	3.34	3.85	3.55	3.58
3	3.78	3.45	3.50	3.58
4	3.05	3.65	3.86	3.52
5	3.69	3.27	3.78	3.58
6	3.72	3.44	2.77	3.31
7	3.35	2.89	3.60	3.28
8	3.10	3.05	4.05	3.40
9	3.52	3.58	3.06	3.39
10	3.96	3.14	2.91	3.34
11	3.69	3.66	3.06	3.47
12	3.25	3.60	3.57	3.47
13	3.24	3.36	4.26	3.62
14	3.51	3.93	2.88	3.44
15	3.03	3.61	3.59	3.41
Average	3.44	3.44	3.51	3.46
% > 3.0	100%	100%	100%	100%

Table 2 Grade Distribution of CVEN 4313

Grade	Number of Students	Percent
A	1	7%
B	14	93%
C	0	0%

	D 0 0% F 0 0% Conclusion: Given 70% as the pre-defined assessment threshold, the committee stated the assessment was rigorous and concluded that Outcome 2 was met from this course. Action Plan: No further action is planned because the expected outcome was met.	
Assessment of Outcome 2 via CVEN 3370 Outcome 2 will be assessed in Spring 2026. The assessment will be done in the end of Spring 2026, and the results will be uploaded. Direct - Assignment <i>Water & Wastewater Treatment: CVEN 3370</i> Target The student outcome shall be attained if greater than or equal to 70% of the students in this class receives an average score of 3 out of 4. Water and Wastewater Treatment-Design project- Group-1.pdf Water and Wastewater Treatment-Design project- Group-2.pdf Water and Wastewater Treatment-Design project- Group-3.pdf Water and Wastewater Treatment-Design project- Group-4.pdf	MET Summary The students were requested to design a water treatment plant for a US city (minimum population of 100,000). This assignment was designed to assess the students' ability to identify, formulate, and solve a complex engineering problem (designing a water treatment plant for a US city) The students were expected to meet specific design specifications and constraints for the design. At the end of the project, the students were expected to submit a comprehensive water treatment plant design report consisting of the following sections: 1) executive summary, 2) city history, 3) population projection for a 50-year design life, 4) selection of water source, 5) water demand calculations, 6) water treatment plant design, 7) sludge management, 8) summary of water treatment train with dimensions/layouts, 9) plant drawings and, 10) work distribution, 11) references and appendix. This task was aimed at evaluating the students' ability to apply engineering design to produce solutions to meet specific needs. The assessment results show that 7 students' assessment scores are below 3.0. In other words, 74% of students (i.e., 20 out 27 students) have a score of 3.0 or higher. For the average score, the 70-percentile is 3.76. The details of the assessment results are given below (Section of Analysis). Given 70% as the pre-defined assessment threshold, the committee stated the assessment was rigorous and concluded that Outcome 1 was met. CVEN3370 Spring 2026 Outcome2_new.docx Analysis The students were requested to design a water treatment plant for a US city (minimum population of 100,000). This assignment was designed to assess the students' ability to identify, formulate, and solve a complex engineering problem (designing a water treatment plant for a US city)	<i>No actions have been added.</i>

The students were expected to meet specific design specifications and constraints for the design. At the end of the project, the students were expected to submit a comprehensive water treatment plant design report consisting of the following sections: 1) executive summary, 2) city history, 3) population projection for a 50-year design life, 4) selection of water source, 5) water demand calculations, 6) water treatment plant design, 7) sludge management, 8) summary of water treatment train with dimensions/layouts, 9) plant drawings and, 10) work distribution, 11) references and appendix. This task was aimed at evaluating the students' ability to apply engineering design to produce solutions to meet specific needs.

Table 1 gives the assessment results for Outcome 1. The assessment scores less than 3.0 were highlighted. The results show that 7 students' assessment scores are below 3.0. In other words, 74% of students (i.e., 20 out of 27 students) have a score of 3.0 or higher. For the average score, the 70-percentile is 3.76.

Table 1 Assessment of CVEN 3370 for Outcome 1

Student No	Outcome			Average
	1.1	1.2	1.3	
1	3.56	3.20	3.18	3.31
2	3.88	3.88	3.65	3.80
3	3.88	3.88	3.65	3.80
4	2.60	2.60	2.44	2.55
5	3.88	3.88	3.65	3.80
6	3.56	3.56	3.35	3.49
7	3.88	3.88	3.65	3.80
8	2.60	2.29	2.30	2.40
9	3.48	3.02	3.05	3.18
10	2.60	2.39	2.35	2.45
11	2.60	2.60	2.44	2.55
12	3.84	3.84	3.61	3.76
13	2.60	2.50	2.40	2.50
14	2.60	2.21	2.26	2.36
15	3.48	3.13	3.11	3.24
16	3.48	3.02	3.05	3.18
17	3.56	3.56	3.35	3.49
18	3.48	3.48	3.27	3.41
19	3.84	3.84	3.61	3.76
20	3.48	3.48	3.27	3.41
21	3.84	3.84	3.61	3.76
22	2.60	1.99	2.16	2.25
23	3.88	3.88	3.65	3.80
24	3.84	3.84	3.61	3.76
25	3.56	3.56	3.35	3.49
26	3.84	3.84	3.61	3.76
27	3.56	3.56	3.35	3.49
Average	3.41	3.29	3.15	3.28
% > 3.0	74.1%	74.1%	74.1%	74.1%

Table 2 gives the final grade distribution. 81.5% of students got a grade of C or higher. This percentage is close to the

	percentage of assessment higher than 3.0 (74.1%).																			
	Table 2 Grade Distribution of CVEN 3370 <table> <tr> <th>Grade</th><th>Number of Students</th><th>Percent</th></tr> <tr> <td>A</td><td>6</td><td>22.2%</td></tr> <tr> <td>B</td><td>11</td><td>40.7%</td></tr> <tr> <td>C</td><td>5</td><td>18.5%</td></tr> <tr> <td>D</td><td>3</td><td>11.1%</td></tr> <tr> <td>F</td><td>2</td><td>7.4%</td></tr> </table>	Grade	Number of Students	Percent	A	6	22.2%	B	11	40.7%	C	5	18.5%	D	3	11.1%	F	2	7.4%	
Grade	Number of Students	Percent																		
A	6	22.2%																		
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C	5	18.5%																		
D	3	11.1%																		
F	2	7.4%																		
	Conclusion: Given 70% as the pre-defined assessment threshold, the committee stated the assessment was rigorous and concluded that Outcome 1 was met. Action Plan: No further action is planned because the expected outcome was met.																			

Conclusion

The assessment results show that more than 70% of students have the evaluation score higher than 3.0. Therefore, we conclude that this outcome is well met.

An ability to communicate effectively with a range of audiences **NOT MET**

An ability to communicate effectively with a range of audiences.

3.1 Ability to communicate orally to a wide range of audiences.

3.2 Ability to communicate in written form.

3.3 Ability to communicate technical drawings, schematic, figures, and tables to a wide range of audiences.

MEASURES	RESULTS	ACTIONS
Assessment of Outcome 3 via CVEN 4313 Outcome 3 will be assessed via CVEN 4313: Civil Engineering System Design Project (II) The assessment will be conducted in Spring 2026, and the results will be uploaded at the end of Spring 2026. Direct - Assignment <i>Civil Eng Sys Des Proj (II): CVEN 4313</i> Target The student outcome shall be attained if greater than or equal to 70% of the students in this class receives an average score of 3 out of 4. Group 1.pdf Group2_presentation.pdf Group3_presentation.pdf	NOT MET Summary Each team had 5 students, and each chose a role and subsequent responsibility within the team. Team positions may include but are not limited to: (1) Project Manager, (2) Lead Structural Engineer, (3) Lead Civil Engineer, (4) Drafting/Drawing Manager, and (5) Quality Control Manager. This task was designed to evaluate the students' ability to function effectively on a team and create a collaborative environment. The class culminated in an interactive presentation where members of industry and Lamar faculty were present to ask questions and test student's ability to field questions and respond to unforeseen questions and/or comments. Three groups presented their design project on April 23 rd , 2026. Eleven (11) evaluators, including the faculty from the Department of Civil and Environmental Engineering and external evaluator from industry, assessed Outcome 3 from each team's presentation and deliverables.	Implement New Program or Services IN PROGRESS Students are given 3 different design classes which require oral presentations. Students will have more chances to practice communication skills. Recommended Due Date: 05/31/2027 Additional Training IN PROGRESS (1) Introduce more mid-semester presentations so students will have more practice in oral presentations. (2) Provide opportunities and encourage students to make more presentations to non-technical clients, and thus students are expected to learn how to prepare the proper contents in presentations and how to communicate with non-technical people. (3) Invite some guest lecturers to talk in some workshops on how to improve communication skills. Recommended Due Date: 05/31/2027 Gather Additional Data Not Started

The score for each item of Outcome 3 is the average from the results of 11 evaluators. The assessment results show that the average overall score for Outcome 3 is above 3.0. For Outcome 3.2, all groups received a score higher than 3.0 on average. However, for Outcome 3.1 and 3.3, one group has a score below 3.0. Especially for Outcome 3.3, the average of all groups is slightly below 3.0.

Conclusion: On average, 66.7% of students have a score of 3.0 or higher, a little lower than 70%, pre-defined assessment threshold. The committee gave some suggestions, and this outcome will be assessed in the next cycle. For overall average, the 70-percentile score is 3.29.

[CVEN4313 - Outcome 3_new.docx](#)

Analysis

The senior students of this class were requested to follow the process that a consulting engineer would follow to produce construction drawings for a design project of their choosing. Four deliverable submittals were set: following the industry standard design phases of 30%, 60%, 90%, and 100%, respectively. The required submittals include (1) Basis of Design, (2) Design Schedule, (3) Construction Drawings, and (4) Supporting Design Calculations.

Each team had 5 students, and each chose a role and subsequent responsibility within the team. Team positions may include but are not limited to: (1) Project Manager, (2) Lead Structural Engineer, (3) Lead Civil Engineer, (4) Drafting/Drawing Manager, and (5) Quality Control Manager. This task was designed to evaluate the students' ability to function effectively on a team and create a collaborative environment. The class culminated in an interactive presentation where members of industry and Lamar faculty were present to ask questions and test student's ability to field questions and respond to unforeseen questions and/or comments.

Three groups presented their design project on April 23rd, 2026. Eleven (11) evaluators, including the faculty from the Department of Civil and Environmental Engineering and external evaluator from industry, assessed Outcome 3 from each team's presentation and deliverables.

Table 1 gives the summary of evaluation scores for Outcome 3. The scores below 3.0 were highlighted. The score for each item of Outcome 3 is the average from the results of 11 evaluators. Note that since the evaluation is group based. Therefore, students within one group have identical scores.

This outcome will be re-assessed in Spring 2027

Recommended Due Date: 05/31/2027

Table 1 Assessment of CVEN 4311 for Outcome 2

Student No	Outcome			Average
	3.1	3.2	3.3	
1	3.23	3.27	3.36	3.29
2	3.23	3.27	3.36	3.29
3	3.23	3.27	3.36	3.29
4	3.23	3.27	3.36	3.29
5	3.23	3.27	3.36	3.29
6	3.09	3.14	2.32	2.85
7	3.09	3.14	2.32	2.85
8	3.09	3.14	2.32	2.85
9	3.09	3.14	2.32	2.85
10	3.09	3.14	2.32	2.85
11	2.73	3.09	3.18	3.00
12	2.73	3.09	3.18	3.00
13	2.73	3.09	3.18	3.00
14	2.73	3.09	3.18	3.00
15	2.73	3.09	3.18	3.00
Average	3.02	3.17	2.95	3.05
% > 3.0	66.7%	100%	66.7%	66.7%

Table 1 shows that the average overall score for Outcome 3 is above 3.0. For Outcome 3.2, all groups received a score higher than 3.0 on average. However, for Outcome 3.1 and 3.3, one group has a score below 3.0. Especially for Outcome 3.3, the average of all groups is slightly below 3.0. The percentage of students with scores higher than 3.0 is 66.7%. For overall average, the 70-percentile score is 3.29.

The assessment results show that one group has the overall score less than 3.0 because the assessment score of Outcome 3.3 is only 2.32. Another group also has a score of Outcome 3.1 below 3.0. These assessment results indicate that students' communication skills need improvement.

Conclusion

In this cycle, Outcome 3 was assessed via this course only.

The assessment results show that the average overall score for Outcome 3 is above 3.0. For Outcome 3.2, all groups received a score higher than 3.0 on average. However, for Outcome 3.1 and 3.3, one group has a score below 3.0. Especially for Outcome 3.3, the average of all groups is slightly below 3.0. The percentage of students with scores higher than 3.0 is 66.7%. For overall average, the 70-percentile score is 3.29.

The assessment results show that one group has the overall score less than 3.0 because the assessment score of Outcome 3.3 is only 2.32. Another group also has a score of Outcome 3.1 below 3.0. These assessment results indicate that students' communication skills need improvement.